

WHAT IS CLAIMED IS:

1. A method of controlling the puncturability of a polymeric film, the method comprising:

providing a polymeric film; and

5 modifying the film to provide a targeted level of at least one of:

the friction between the film and a puncturing object,

the film's flexural rigidity,

the film's recovering stress, and

the film's elongation at break.

10 2. The method of claim 1 further comprising controlling the sealability of a puncture site in the film.

15 3. The method of claim 1 further comprising controlling the resealability of a puncture site in the film.

20 4. The method of claim 1 wherein modifying the film comprises at least one of applying a modifying material to a surface of the film or incorporating a modifying material into the film wherein the incorporated modifying material is chosen because it substantially migrates to a major surface of the film.

5. The method of claim 4 wherein the modifying material is a lubricant.

25 6. The method of claim 4 wherein the modifying material is a silicone.

7. The method of claim 4 wherein the modifying material adheres to the puncturing object.

30 8. The method of claim 1 wherein the modifying material is an adhesive.

9. The method of claim 1 wherein the polymeric film is a multilayer film comprising two outer layers and at least one inner layer forming a core layer.

10. The method of claim 9 wherein modifying a surface of the film comprises
5 modifying at least one of the outer layers of the film to provide a targeted level of at least one of:

the friction between the film and a puncturing object;

the film's flexural rigidity;

and

10 the film's elongation at break.

11. A method of preparing a multilayer polymeric film having a targeted level of puncturability, the method comprising:

selecting a plastic material to form a first layer;

15 selecting an elastomeric material to form a second layer; and

joining the plastic material and the elastomeric material to form a multilayer polymeric film;

wherein the type and amount of materials forming the first layer and second layers are selected to provide a targeted level of at least one of:

20 the friction between the film and a puncturing object;

the film's flexural rigidity;

the film's recovering stress; and

the film's elongation at break.

25 12. The method of claim 11 further comprising selecting a plastic material to form a third layer such that the first and third layers form outer layers, and the second layer forms a core layer of a three layer construction.

13. The method of claim 12 wherein selecting an elastomeric material for the core
30 layer comprises selecting an elastomeric material to provide a targeted level of recovering stress of the film.

14. The method of claim 11 wherein the film further has a targeted level of sealability.

15. The method of claim 11 wherein the film further has a targeted level of resealability.

16. A method of preparing a polymeric film having a targeted level of puncturability, the method comprising:

selecting a polymeric material and a modifying material;
combining the polymeric material and the modifying material to form a molten mixture; and

forming the molten mixture into a film;

wherein the type and amount of polymeric and modifying materials are selected to provide a targeted level of at least one of:

the friction between the film and a puncturing object;

the film's flexural rigidity;

the film's recovering stress; and

the film's elongation at break.

17. The method of claim 11 wherein the film further has a targeted level of sealability.

18. The method of claim 11 wherein the film further has a targeted level of resealability.

19. A polymeric film having first and second parallel major surfaces wherein the film can be punctured when the film is stretched to a given displacement by a puncturing object applied to the first major surface, but the film cannot be punctured when the film is stretched to the same displacement by the same puncturing object applied to the second major surface

20. A system of controlling the puncturability of a polymeric film, comprising:

providing a polymeric film having a given flexural rigidity, recovering stress, and elongation at break; and

5 providing a puncturing object having at least one characteristic that will achieve a desired level of puncturability of the film with the puncturing object.

21. The system of claim 20 wherein the characteristic is characteristic selected from the group consisting of the shape of the puncturing object, the material of the

10 puncturing object, and the coefficient of friction between the puncturing object and the film.

22. The system of claim 20 wherein the puncturing object is polypropylene and the layer of film contacting the object is high density polyethylene.

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